

REMARKS

Claims 1-3, 5-14, 35, 36 and 45-48 are pending in this application. By this Amendment, claims 15-34 and 37-44 are canceled without prejudice to or disclaimer of the subject matter contained therein. Applicants thank the Examiner for the indication that claims 35, 36, 45, 46 and 48 contain allowable subject matter.

Applicants appreciate the courtesies shown to Applicants' representative by Examiner Angebrannt during the November 24 telephone interview. Applicants' separate record of the substance of the interview is incorporated into the following remarks.

Entry of the amendments is proper under 37 CFR §1.116 since the amendments: (a) place the application in condition for allowance for the reasons discussed herein; (b) do not raise any new issue requiring further search and/or consideration; and (c) place the application in better form for appeal, should an appeal be necessary. The amendments are necessary to correct claim dependencies. Entry of the amendments is thus respectfully requested.

The August 26 Office Action rejects claims 1-3, 5-34, 37-45 and 47 under 35 U.S.C. §103(a) as allegedly unpatentable over Kalinina et al., "A 'Core-Shell' Approach to Producing 3D Polymer Nanocomposites", *Macromolecules*, Vol. 32 (1999) pp. 4122-4129 (Kalinina), in view of U.S. Patent 4,948,695 to Matsushita et al. or U.S. Patent 5,013,629 to Sekine et al. Applicants respectfully traverse this rejection.

By this amendment, claims 15-34 and 37-44 are canceled. Applicants respectfully submit that the rejection is moot with respect to these claims and should be withdrawn.

Applicants submit that the November 5 Advisory Action indicates that the rejection as to claim 45 has been withdrawn and that claim 45 is allowed.

Claim 1 sets forth, in pertinent part, a "method for storing information in a three dimensional optical memory storage device, comprising: subjecting a nanocomposite to irradiation, ... said irradiation being selectively focused on individual particles in said array to effect photobleaching of said individual particles, said irradiation being two-photon irradiation of a wavelength to effect said photobleaching, and said irradiation being selectively focused on individual particles such that at least one particle adjacent to the selected particle in the direction of irradiation are photobleached by less than 25%.

Applicants respectfully submit that claims 1-3, 5-14 and 47, like allowed claim 35, recite a process of photobleaching by two-photon irradiation individual particles of a nanocomposite. Applicants thus respectfully submit that, for at least the same reasons that claim 35 is patentable and as discussed in the November 24 telephone interview, claims 1-3, 5-14 and 47 are patentable.

Applicants further submit that claims 1-3, 5-14 and 47 are patentable for at least the reasons set forth below.

Kalinina does not disclose, teach or suggest the method of irradiating the nanocomposite. At most, Kalinina alludes to the possibility of using nanocomposites such as those described in Kalinina for three-dimensional memory storage and to local photobleaching. Kalinina itself does not teach the method of two-photon irradiation of claim 1, as is admitted by the August 26 Office Action at page 3.

Based on the teachings of Kalinina, one of ordinary skill in the art would, at most, find it obvious to try various methods of photobleaching. The features of selecting at least one individual particle of the nanocomposite and irradiating the at least one individual particle with two-photon irradiation, wherein, in response to the two-photon irradiation, at least one individual particle adjacent to the selected at least one individual particle is photobleached by

no more than about 25%, as recited in claim 1, are nowhere suggested, disclosed or taught by Kalinina.

Further, Kalinina does not disclose, teach or suggest the method of two-photon irradiation of claim 1, as is admitted by the August 26 Office Action at page 3. Irradiating at least one individual particle of a nanocomposite with two-photon irradiation, wherein, in response to the two-photon irradiation, at least one individual particle adjacent to the selected at least one individual particle is photobleached by no more than about 25% as recited in claim 1, is nowhere suggested, disclosed or taught by Kalinina. One of ordinary skill in the art would not have been motivated by Kalinina to select at least one individual particle of a nanocomposite; and irradiate that particle with two-photon irradiation, with the expectation that, in response to the two-photon irradiation, at least one adjacent particle in the direction of irradiation would be photobleached by no more than about 25%, as recited in claims 1-3, 5-14 and 47, for at least the reasons that, unlike claims 1-3, 5-14 and 47, Kalinina does not provide any teachings regarding the photobleaching of individual particles and/or regarding the extent that particles adjacent to target particles may be photobleached.

Thus, Kalinina alone does not disclose, teach or suggest all of the features of the nanocomposites or methods set forth in claims 1-3, 5-14 or 47. Matsushita and Sekine, alone or in combination, cannot remedy these deficiencies of Kalinina.

Neither Matsushita nor Sekine disclose, teach or suggest the features of claims 1-3, 5-14 and 47, outlined above as lacking in Kalinina. While Matsushita and Sekine both teach photo-curable microcapsules, neither Matsushita nor Sekine discloses, teaches or suggests a nanocomposite including a matrix array of particles having a liquid core resin containing at least one photosensitive compound surrounded by an inner shell resin and an outer shell resin that forms a continuous phase of the matrix as recited in independent claim 1, as well as

allowed independent claims 35, 45 and 46. Neither Matsushita nor Sekine contains any motivation to substitute the particles disclosed in either Matsushita or Sekine for the hard core core-shell particles of Kalinina. Moreover, Kalinina, as discussed above, teaches away from including fluid core microcapsules in its nanocomposite. Likewise, there is no motivation to substitute the particles of either Matsushita or Sekine into the Kalinina porous film in which the soft cores have been removed. In addition, neither Matsushita nor Sekine contains any motivation to order their particles in a matrix array.

Additionally, with regards to claims 1-3, 5-14 and 47, neither Matsushita nor Sekine discloses, teaches or suggests a method of photobleaching particles of a nanocomposite. Neither Matsushita nor Sekine, alone or in combination, discloses, teaches or suggests selecting individual particles within a nanocomposite and irradiating the selected individual particles, or irradiating the selected individual particles by using a two-photon irradiation of a wavelength effective for photobleaching the selected individual particles. Finally, the feature of irradiating at least one individual particle of a nanocomposite with two-photon irradiation, wherein, in response to the two-photon irradiation, at least one individual particle adjacent to the selected at least one individual particle is photobleached by no more than about 25%, as recited in claim 1, is also nowhere suggested, disclosed or taught by either Matsushita or Sekine.

Therefore, for at least the reasons outlined above, the combinations of Kalinina and either Matsushita or Sekine fail to teach, disclose or suggest all of the features recited in claims 1-3, 5-14 or 47. Accordingly, the combinations of Kalinina, and either Matsushita or Sekine, cannot render claims 1-3, 5-14 and 47 obvious under 35 U.S.C. §103(a). Withdrawal of the rejection of claims 1-3, 5-14 and 47 as unpatentable over the combinations of Kalinina and either Matsushita or Sekine is respectfully requested.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-3, 5-14 and 45-48 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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